

H.A

**Notice of Allowability**

Application No.

10/716,994

Applicant(s)

MEARS ET AL.

Examiner

Thinh T Nguyen

Art Unit

2818

**-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 11/19/2003.
2. ☒ The allowed claim(s) is/are 72-97.
3. ☒ The drawings filed on 19 November 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

  
 David Nelms  
 Supervisory Patent Examiner  
 Technology Center 2800

## **DETAILED ACTION**

### **Examiner's comment.**

1. The examiner can not identifies patent AD assigned to Yamazaki on the IDS sent to the Office by the Applicants on November 19<sup>th</sup> 2003. for this reference to be considered by the Office, the Applicants need to sent in the correct identification of this reference before paying the issue fee.

### **Reason for allowance**

2. Claims 72-97 are allowed. The following is an examiner's statement of reason for allowance:

#### **I/ group I : claims 72-87:**

None of the references of record teaches or suggests the claimed

**SEMICONDUCTOR DEVICE INCLUDING BAND-ENGINEERED**

**SUPERLATTICE** having the limitations

-- " groups of layers arranged an alternating pattern of first and second groups of layers, with each first group of layers comprising three base semiconductor

monolayers, and each second group of layers comprising five base semiconductor monolayers; said energy-band modifying layer comprising at least one non-semiconductor monolayer constrained within a crystal lattice of adjacent base semiconductor portions. "--

and all other limitations as recited in claim 72.

**II/ group II : claims 88-97:**

None of the references of record teaches or suggests the claimed

**SEMICONDUCTOR DEVICE INCLUDING BAND-ENGINEERED  
SUPERLATTICE** having the limitations

-- " groups of layers arranged an alternating pattern of first and second groups of layers, with each first group of layers comprising three base semiconductor monolayers, and each second group of layers comprising five base semiconductor monolayers; said energy-band modifying layer comprising at least one oxygen monolayer constrained within a crystal lattice of adjacent base semiconductor portions. "--

and all other limitations as recited in claim 88.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

### Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Seabaugh ( US patent 5,796,119) disclose a silicon resonant tunneling.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T Nguyen

TTN

Art unit 2818

  
David Nelms  
Supervisory Patent Examiner  
Technology Center 2800